INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2004	**Park:** Shenandoah NP
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Permit#:
SHEN-2003-SCI-0006

Park-assigned Study Id. #:
SHEN-00283

Project Title:
ISOTOPE MONITORING OF ATMOSPHERIC DEPOSITION AT BIG MEADOWS, SHENANDOAH NATIONAL PARK, VIRGINIA

Permit Start Date: Apr 21, 2003	**Permit Expiration Date** Apr 21, 2005
Study Start Date: Apr 21, 2003	**Study End Date** Apr 21, 2010

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Geochemistry (inc. Minerals / Petrology)

Objectives:

Isotope studies of atmospheric deposition are important for at least 2 major reasons: they provide baseline data for environmental tracers used in studies of hydrobiologic cycles, and they provide insights about the sources of atmospheric contaminants. Large numbers of isotope monitoring studies have been done in the past, but they generally have been limited in scope (i.e., few constituents or short time period). The current study is intended to provide a relatively comprehensive multi-component isotopic data set for atmospheric deposition at a well-established climate station for which other supporting data are also available for comparison. The constituents analyzed in this study are major element chemistry, the radioactive isotopes 3H in H2O and 35S in SO4=, and the stable isotopes of H and O in H2O, S and O in SO4=, N and O in NO3-, and N in NH4+. These analyses are done on large-volume samples of open deposition (wet plus dry) collected approximately monthly in a cleared field at the Big Meadows climate station, Shenandoah National Park, Virginia. This dataset should be useful for local and regional studies of atmospheric environmental tracers in ground water, surface water, and biota.

Findings and Status:

Sampling continued through the year with 3-4 open-deposition collectors providing integrated samples for multi-component isotopic analyses approximately once every 1-2 months. Partial comparisons are being made between samples that were collected with acidified and non-acidified collectors and between samples that were collected with open and wet-only collectors. Isotope analyses will be compiled when analyses and interpretations are done.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?	
Yes	
Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**
0	0
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0